



October 6, 2011

*Via Electronic Filing*

Marlene H. Dortch, Secretary  
Federation Communications Commission  
445 12<sup>th</sup> Street SW  
Washington, DC 20554

RE: EX PARTE NOTICE, CLOSED CAPTIONING OF INTERNET PROTOCOL-DELIVERED VIDEO PROGRAMMING, 21<sup>ST</sup> CENTURY COMMUNICATIONS & VIDEO ACCESSIBILITY ACT, MB DOCKET NO. 11-154

Dear Ms. Dortch:

On October 4<sup>th</sup>, 2011, I (Greg Fields) and Dr. Daniel Fok from Research In Motion ("RIM") conducted a telephone call with Jeffrey Neumann, Alison Neplokh, John Wong, Michelle Carey, Diana Sokolow, Eliot Greenwald, Rosaline Crawford, Alan Stillwell, Steven Broeckaert, Mary Beth Murphy, Roger Holberg and Thomas Apone from the FCC. During the meeting, representatives from RIM discussed matters pertaining to the 21<sup>st</sup> Century Communications and Video Accessibility Act and the Notice of Proposed Rulemaking on Closed Captioning of Internet Protocol-Delivered Video Programming (FCC 11-138, MB Docket No. 11-154, Adopted and Released on September 19, 2011). The information attached represents questions posed in advance by the FCC, and discussed during the meeting.

Pursuant to the Commission's rules, this letter is being submitted for inclusion in the public record of the above-referenced proceeding.

Sincerely,

/s/ Greg Fields

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## Questions by FCC, Answers by RIM

**1. What apparatus are designed to receive video programming? Does this include hardware only, or does it make sense to focus on software in addition (or instead)?**

Both a) dedicated devices designed for the primary purpose of playing video, and b) multi-purpose devices capable of playing video as a secondary or tertiary purpose to render video content, operate in part through software. Be it a purpose-built or proprietary operating system or a media player available in a traditional mass-market operating system, the video playback functionality is determined in large part by the software.

In the context of playing back closed captioned content delivered via the Internet, the scope of apparatus could very well be software as it inherently implies an internet browser software application is managing the network access to the video content.

**2. What devices are capable of playing video that are primarily designed to do something else?**

There are multiple types of devices, in addition to desktop or laptop computers, capable of playing video that are primarily designed to do something else, including but not limited to the following:

- **Mobile phones** – The primary purpose of mobile phones (spanning entry-level feature phones to more complex smartphones capable of running a multitude of applications) may be to place and receive phone calls. Secondary purposes may include the ability to organize one's life via calendar and memo pad applications, as well as enabling text-based communication methods such as SMS/text messaging and instant messaging. Tertiary purposes may include the ability to enable connectivity to other information in multiple formats such as content accessed via an Internet browser and multimedia content played via a media player application.
- **Tablet computers** – Such devices may have a primary purpose that includes the ability to organize one's life and a secondary purpose of enabling communication via multiple methods, connecting to other information, and entertainment (play games, watch movies, etc.), all in a manner analogous to mobile phones.
- **Other** – There is a range of other devices capable of playing video content and is primarily designed to do something other than playing videos. One example is a wrist watch capable of telling the time, measuring time in either Stopwatch or Timer scenarios, organizing one's life via Calendar and/or reminders, and now even makes phone calls and play videos (See [LG GF910 example](#)).



**3. What does it mean for it to be "achievable" for an apparatus to support closed captioning? This is the big limitation on "all apparatus" from above. There's a big definition in the statute, but what are the practical limitations of support?**

Given the focus is software, achievable in a real sense could include the following:

- Larger enough screen to view caption text, with at least a minimum number of characters displayed on two lines using the largest font setting available on the product.
- Accessible via browser that supports HTML5 or greater
- Supported by the platform operating system used on the apparatus

**4. How small a screen is "too small"?**

This is a point that requires research and efficacy testing, and is also subjective as it is based on user needs. For example, a person with vision loss, or even someone trying to read a small screen while on a moving bus/train, will have different needs of the screen size and subsequently of the caption size.

See NCAM study on [Captioning Solutions for Handheld Media and Mobile Devices](#), which unfortunately doesn't provide this data but is the closest to answering the question that I have seen globally.

Research is still needed to identify the smallest screen that is still useful for the purpose of displaying caption text over a video file.

**5. How do we account for device processing power?**

Device processing power can be defined in terms of Megahertz (MHz) and Million computer Instructions per Second (MIPS). This is not a true measure of processing capability though as it doesn't take into account available power, not already used by the covered devices Operating System, applications and/or services running in the background (as in the case of a phone, where the radio is running and active in the background), and more. In the case of processing power available to render closed captioned multimedia delivered via Internet, this would also need to account for, in the least, the processing power consumed by the Operating System, the cellular wireless radio accessing the network, the application managing the connection to the Internet (Example – Internet Browser), the Media Player application managing the processor and resource-intensive task of playing the video, the facilities managing the display of a text box overlaid atop the video content for captions, and then the facilities needed to synchronize the rendering and refreshing of caption text with the timing of the video content file being played.



In general, rendering closed captioned text in synchrony with multimedia content is a very resource-intensive scenario and is best served to be experienced on covered devices with dedicated Graphics Processing Units (GPU) designed to render audio video content and overlaid text and/or graphics crisply and smoothly.

To provide a definitive set of specifications that are minimally capable of rendering closed captions, more research is required to ensure evidence-based rulemaking.

## **6. What are the other factors that limit a device's video capabilities?**

There are many other factors that can influence and/or limit a device's video playback capabilities, including but not limited to the following:

- Dedicated or shared memory
- Processing power
- Screen refresh rate
- Multimedia playback frame rates

## **7. What must covered devices be required to do, exactly? For TV, the rules are very detailed, covering character sets, fonts, special characters, colors, and many other things. Is this still the right approach?**

There are existing accessibility requirements standards (See Section 508 § 1194.21 (b)) and usability standards (See [Nielsen Norman's Ten Usability Heuristics](#)) that describe the benefit of consistency throughout the user interface. If the user has the ability to select font settings, and/or requires a minimum font size for visual legibility due to vision loss, those user-defined settings would be best served to be inherited on as many screens and applications as possible. Further still, applications should not alter these user-defined features if they are considered accessibility features. This should be the same when applied to a covered apparatus. The user interface requirements as they pertain to font display settings should be limited to those already defined by users.

Secondarily, devices with primary purposes other than video playback are not televisions, do not have the same dedicated video playback facilities built into televisions, are used in different user scenarios than are televisions, and as such should not be treated as televisions.



**8. Is there a baseline standard that covered devices should be implementing, such as a set of broad functional requirements or something else?**

There isn't a baseline standard that would be equally appropriate or applicable for all covered devices--most specifically, there isn't a standard that spans devices with screens smaller than 13 inches.

While it may be outside of the scope of the FCC to specify a standard, and since a standard does not yet exist for closed caption display on devices with screens less than 13 inches, the FCC should limit any reference to standards compliance to the non-proprietary standard for the given platform. Such language allows for the future development of standards that address all devices, including those with screens less than 13 inches.

**9. What sort of a timeframe are we really looking at for implementation?**

While not communicated publicly in any publication I could find personally, the informal average time it takes to develop a new consumer electronics product is between 12 and 18 months. Assuming further that it would take another 12 to 18 months to develop a standard that effectively qualifies the requirements for all covered devices to support and render closed captioned content delivered via Internet on all covered devices, it is fair and reasonable to assume that it would take 30 – 36 months for covered devices to implement support for closed captioning of Internet Protocol delivered video content, assuming the requirements are achievable.

**10. How much of the current product line (that might be covered in the future) already supports closed captioning and how much would need to be updated?**

BlackBerry® smartphones running BlackBerry OS 4.7 and higher, which represents all the new BlackBerry devices sold in the US, already support closed caption and open caption playback via Native Media Player.

The BlackBerry® PlayBook™ tablet device include with a very sophisticated Internet Browser with HTML5 and Flash support, and can support playback of captions delivered via Internet Browser based Media Player applications (Example – closed captioned YouTube content).